

EDITORIAL

- 427 An Education That Inspires
Bruce Alberts

NEWS OF THE WEEK

- 432 After Red Mud Flood, Scientists Try to Halt Wave of Fear and Rumors
433 First Goldilocks Exoplanet May Not Exist
434 How Wet the Moon? Just Damp Enough to Be Interesting
 >> Research Article p. 463; Reports pp. 468–486
435 Rinderpest, Deadly for Cattle, Joins Smallpox as a Vanquished Disease
436 1.3 Billion Divided by 6.5 Million, and Watch That Floating Decimal
437 From *Science*'s Online Daily News Site
438 Iraq Banks on Peer Review to Rebuild Its Research Base
439 Reanalysis of French Cave Could Deal Setback to Neandertal Smarts
439 From the *Science* Policy Blog

NEWS FOCUS

- 440 Immune Therapy Steps Up the Attack
 >> *Science Podcast*
444 Radio Astronomers Take Arms Against a Sea of Signals

LETTERS

- 446 Who Pays the Price for Shared Social Responsibility?
 D. A. Cleveland
 Response
 A. Gneezy et al.
 Nuclear Waste: Thorium's Potential
 A. Cannara
 Nuclear Waste: Progress with Public Engagement
 L. Hamilton and B. Scowcroft
 Response
 E. A. Rosa et al.

- 448 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 450 Never Pure
 S. Shapin, reviewed by R. E. Kohler
451 WeltWissen [World Knowledge]
 J. Hennig, curator, reviewed by M. D. Laubichler

POLICY FORUM

- 453 Politics and Parthenotes
 C. Tingen et al.

PERSPECTIVES

- 454 Flipping the Light Switch
 N. Vogt and C. Desplan
 >> Report p. 499
455 Creating Ligands with Multiple Personalities
 R. H. Crabtree
456 The Flu's Proton Escort
 G. Fiorin et al.
 >> Reports pp. 505 and 509
458 Chaos in the Gulf
 J.-L. Thiffeault
 >> Report p. 486
459 The Long-Term Benefits of Self-Rejection
 S. I. Wright and S. C. H. Barrett
 >> Report p. 493
460 Environment and Disease Risks
 S. M. Rappaport and M. T. Smith
 >> *Science Podcast*

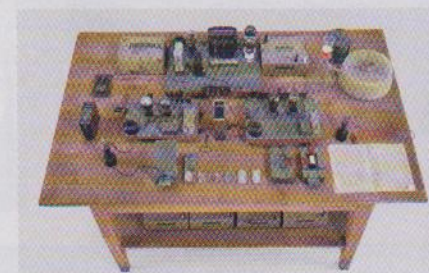
BREVIA

- 462 Neutrino Spectroscopy Can Probe the Dark Matter Content in the Sun
 I. Lopes and J. Silk
 Dark matter in the center of the Sun would affect its internal structure and lead to a distinctive neutrino emission pattern.

CONTENTS continued >>



page 440



page 451



COVER

Surface temperature map of the south polar region of the Moon acquired by the Lunar Reconnaissance Orbiter Diviner Lunar Radiometer Experiment. Blue and violet areas are intensely cold impact craters. The Lunar Crater Observation and Sensing Satellite (LCROSS) spacecraft struck one of these craters (near the center of the frame), revealing the presence of water ice and other frozen volatiles. See the six research papers beginning on page 463.

Image: David A. Paige/UCLA/JPL/GSFC/NASA

DEPARTMENTS

- 424 This Week in *Science*
428 Editors' Choice
430 *Science* Staff
431 Random Samples
526 New Products
527 *Science* Careers

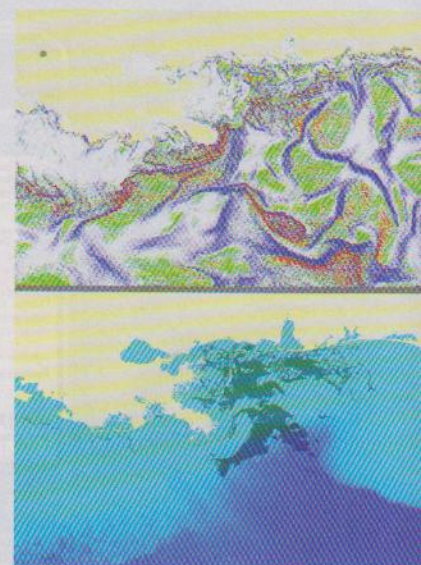
RESEARCH ARTICLE

- 463 **Detection of Water in the LCROSS Ejecta Plume**
A. Colaprete et al.
A controlled spacecraft impact into a crater in the lunar south pole plunged through the lunar soil, revealing water and other volatiles.
>> News story p. 434; Reports pp. 468–486; Science Podcast

REPORTS

- 468 **The LCROSS Cratering Experiment**
P. H. Schultz et al.
- 472 **LRO-LAMP Observations of the LCROSS Impact Plume**
G. R. Gladstone et al.
- 477 **Diviner Lunar Radiometer Observations of the LCROSS Impact**
P. O. Hayne et al.
- 479 **Diviner Lunar Radiometer Observations of Cold Traps in the Moon's South Polar Region**
D. A. Paige et al.
- 483 **Hydrogen Mapping of the Lunar South Pole Using the LRO Neutron Detector Experiment LEND**
I. G. Mitrofanov et al.
A controlled spacecraft impact into a crater in the lunar south pole plunged through the lunar soil, revealing water and other volatiles.
>> News story p. 434; Research Article p. 463
- 486 **A New Mixing Diagnostic and Gulf Oil Spill Movement**
I. Mezić et al.
An ocean model can account for the trajectory and fragmentation of the recent Gulf of Mexico oil spill.
>> Perspective p. 458
- 489 **Oscillatory Mass Transport in Vapor-Liquid-Solid Growth of Sapphire Nanowires**
S. H. Oh et al.
High-resolution transmission electron microscopy is used to identify oscillatory growth of a sapphire nanowire.
- 493 **Species Selection Maintains Self-Incompatibility**
E. E. Goldberg et al.
Self-incompatibility in a family of plants is associated with appreciably higher rates of speciation.
>> Perspective p. 459
- 496 **Impeding *Xist* Expression from the Active X Chromosome Improves Mouse Somatic Cell Nuclear Transfer**
K. Inoue et al.
Efficiency of mouse nuclear transfer was improved by correcting aberrant gene expression on the active X chromosome.
- 499 **Two Pairs of Neurons in the Central Brain Control *Drosophila* Innate Light Preference**
Z. Gong et al.
A neural circuit connects perceptual inputs to behavioral outputs.
>> Perspective p. 454
- 502 **Fast Vesicle Fusion in Living Cells Requires at Least Three SNARE Complexes**
R. Mohrmann et al.
Membrane fusion proteins cooperate to promote rapid secretory vesicle exocytosis from neuroendocrine cells.
- 505 **Mechanisms of Proton Conduction and Gating in Influenza M2 Proton Channels from Solid-State NMR**
F. Hu et al.
Histidine side-chain dynamics regulate proton conduction in an influenza proton channel.
- 509 **Insight into the Mechanism of the Influenza A Proton Channel from a Structure in a Lipid Bilayer**
M. Sharma et al.
A tetrameric cluster of histidine and tryptophan residues, through its unique chemistry, shepherds protons through the M2 channel.
>> Perspective p. 456
- 512 **Widespread Divergence Between Incipient *Anopheles gambiae* Species Revealed by Whole Genome Sequences**
M. K. N. Lawnczak et al.
Gene flow among African malaria vectors is more restricted than previously thought.
- 514 **SNP Genotyping Defines Complex Gene-Flow Boundaries Among African Malaria Vector Mosquitoes**
D. E. Neafsey et al.
Populations of African malaria vectors show signs of selective sweeps and ongoing speciation in their genomes.
- 517 **ATM Activation by Oxidative Stress**
Z. Guo et al.
The protein kinase ATM is a sensor for reactive oxygen species.
- 521 **The Ligase PIAS1 Restricts Natural Regulatory T Cell Differentiation by Epigenetic Repression**
B. Liu et al.
A ligase regulates repression of the *Foxp3* promoter to restrict differentiation of natural regulatory T cells.

CONTENTS continued >>



pages 458 & 486



pages 456, 505, & 509